DOCUMENT RESUME

ED 243 184 EA 016 674

AUTHOR Hartman, William T.; And Others
TITLE Budget Allocation Patterns among School Districts of Varying Fiscal Constraint. [Final Report].
INSTITUTION Oregon Univ., Eugene. Center for Educational Policy and Management.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE Apr 84
NOTE 71p.
AVAILABLE FROM Publications, Center for Educational Policy and Management, College of Education, University of Oregon, Eugene, OR 97403 ($3.00 prepaid or purchase order).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Accountability; Elementary Secondary Education; Expenditure Per Student; *Financial Problems; Input Output Analysis; *Program Budgeting; *Resource Allocation; *Retrenchment; *School District Spending; *School Support; School Surveys; Student Teacher Ratio
IDENTIFIERS *Oregon

ABSTRACT

To investigate school districts' responses to fiscal constraint, this study examined the relationship between districts' expenditures per student and allocations of funds to instructional, support, and administrative costs. Budget allocations, as indicators of the districts' priorities, were compared for 1978-79 and 1981-82 in 46 Oregon school districts whose fiscal situations varied widely. The findings indicate that when fiscal constraint was greatest, priority was given to instruction over other budget categories, and to personnel over other objects of expenditure. As constraint diminished, larger shares of budgets were allocated to administration and to capital outlay. Surprisingly, however, the school districts in the sample generally did not experience fiscal constraint; none of them had actual budget reductions, and both total expenditures and expenditures per student grew substantially in real dollars dispite Oregon's severe recession. Finally, although the sample districts had reduced the number of teachers, they had increased their total instructional staffs and decreased the student/instructional personnel ratio by adding less expensive instructional aides. (Author/MCG)

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BUDGET ALLOCATION PATTERNS AMONG SCHOOL DISTRICTS OF VARYING FISCAL CONSTRAINT

by
William T. Hartman
with
Jon Rivenburg and
Wanda Moore

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April 1984

Published by

Center for Educational Policy and Management
College of Education
University of Oregon
Eugene, Oregon 97403
(503) 686-5173

The preparation of this final report for FY 83 was made possible through an Institutional Grant awarded by the National Institute of Education to the Center for Educational Policy and Management. The opinions expressed in this report do not necessarily reflect the positions or policies of the NIE or the U.S. Department of Education.

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ABSTRACT

To investigate school districts' responses to fiscal constraint, this study examined the effects of changes in districts' current expenditures per student on the allocation of available funds to Instructional, Support Services, and Administrative areas. The relative success of each area in the budget process was interpreted as a composite indicator of the priority of that area for the school district. Trends in budget allocation patterns between 1978-79 and 1981-82 of 46 Oregon school districts which had widely differing fiscal situations were analyzed. The findings indicate that when fiscal constraint was greatest, the budget allocation choices favored Instruction over other budget categories and Personnel expenditures were given priority over other object of expentirue items. As fiscal constraint diminished, the share of the budget allocated to Administration and to Capital Outlay increased. A second and unexpected finding was that the school districts in the sample for the most part did not experience fiscal constraint. None of the districts had actual budget reductions and both total expenditures and expenditures per student achieved substantial real growth during a time of serious economic difficulties in the State. The sample districts also reported a reduction in the number of teachers and a large increase in the number of instructional aides during the period under study. The next results were a shift toward less expensive instructional personnel, an increase in the total number of instructional personnel, and a lowering of the overall student/instructional personnel ratio.

Introduction

Public schools and administrators find themselves in a crossfire between demands for academic achievement and pressure to reduce the costs and taxes for education. Funds for education are neither so plentiful nor so unquestioned as they have been in the past. Nationwide, many school districts are encountering serious difficulties in maintaining adequate educational programs as a result of budget pressures. Extreme examples--school district closures from lack of funds--have been reported in Michigan and Oregon (Education Week 1982; Bishop 1983).

Budget constraints and forced budget reductions require painful, but necessary decisions. As noted in a recent report from the American Association of School Administrators, "The challenge facing those districts is to cut their budgets without endangering the very reason they exist, to provide the best possible education to the students they serve" (Hymes 1982). Effective leadership to allocate and reallocate available resources to program areas central to the instructional mission of the schools is critical to the future success of public education.

Focus of Study

To investigate school district responses to fiscal constraint, this study examined the effects of changes in districts' expenditure and enrollment levels on the allocation of available funds to instructional, support, and administrative areas. Using a sample of school districts with varying degrees of fiscal constraint, detailed analyses were conducted to examine which aspects of the total school districts' operations were favored and which were sacrificed. Special attention was paid to changes in resource allocations to the instructional process which might have implications for

student achievement.

In particular, the trends in budget allocation patterns between 1978-79 and 1981-82 of 46 Oregon school districts which had widely differing fiscal situations were analyzed. The choices of districts with greater budget restrictions were more constrained and they had to consider their priorities at a more basic level than those who had more financial resources available. Due to the severe economic condition of the state in the last years of this period and the resultant pressures on revenues for schools, Oregon provided an excellent natural experiment of school district responses to differing fiscal situations.

In this study a careful and deliberate decision was made to understand educational priorities through an investigation of the budget choices made by school districts. Idiosyncratic characteristics in each school district made the nature of the district's choice process, the relative importance of the individuals and groups involved, and the stated educational priorities of the district and community unique to that district and potentially difficult to analyze, compare, and generalize. However, use of the budget provided a common denominator across districts since tradeoffs, compromises, and conflicting priorities have to be finally resolved in establishing a budget. Rhetoric and debate surrounding the budget process notwithstanding, the final decisions specifying the amounts provided to the various operational areas--the budget--gave the strongest measure of district educational priorities. The relative success of each area in the budget process was interpreted as a composite indicator of the priority of that area for the school district.

The budget was much more than a collection of numbers and dollars. It operationalized the district's educational philosophy, illustrated the varying emphases placed by the district on particular aspects of the

educational process, and specified the strategies to be used in achieving the educational goals of the district. Unlike some types of district policies (e.g., curriculum, personnel evaluation) in which the actual practice may differ from the written policy statements, budgets, of necessity, have a close correspondence with actual district operations. Further, since the budget data used were audited end-of-the-year figures, the districts' budgets provided a clear picture of how educational resources were actually allocated.

Hypothesis of Study

The variation of budget allocation patterns among districts with different financial circumstances, the empirical focus of the study, can also be linked, at least conceptually, with student achievement (Bidwell and Kasarda 1975). The working hypothesis which guided the study design and analysis was that, in general, budget reductions would be made as far from the classroom as possible, an expectation which reflects conventional wisdom. This expectation translated into a comparison of the budget allocations among the major budget categories of instruction, support services, and administration for the sample districts. The underlying premise was that budget choices, particularly under conditions of increased fiscal constraint, would represent choices for direct instructional programs over activities of a supporting or administrative nature. Conversely, decreased fiscal constraint would allow districts to allocate a greater proportion of their budgets to supporting and administrative activities while maintaining a strong instructional program.

This same concept was used to examine budget choices within each of the major budget categories as well. The direct instruction category encompassed a wide range of activities, not all of which were likely to be

perceived as equally important by a school district. Expectations were that instructional activities which were either (a) central to the basic instructional mission of the schools, or (b) required by statutes or regulations, would receive priority treatment over programs or activities that were considered outside of the central or required instructional core. In the support services and administrative budget categories, the relationships between their activities and student achievement were thought to be less direct. However, the same general tendency was expected to prevail, with functions thought to foster instruction and/or to be essential to the district's operations receiving priority. This tendency was clearly illustrated by the criteria prepared by one of the school districts in the sample to evaluate budget reductions:

1. Required by law or policy
2. Basic or essential to a minimal operation of the district, particularly the educational program
3. Self-supporting in terms of special revenues or cost savings
4. Highly productive in relation to cost
5. High level of investment in terms of capital outlay or training
6. A large number of people directly served or affected
7. Acceptability by community and/or staff (Duke 1982)

There are limits, however, to the budget reductions that are possible in each of the categories of instruction, support services, and administration. Approximately 80 percent of the budgets were composed of personnel costs; this left little room for reductions in nonpersonnel cost areas. Further, most of personnel costs were for instructional personnel rather than for administrative or support staff, which limited possible noninstructional reductions. Numerous other constraints also reduced the

flexibility of budget reduction choices. These included state and federal mandates requiring districts to provide certain services or perform specified activities, teacher contracts, and debt service payments. Consequently, the expected priority for instructional programs was tempered by existing patterns of resource allocations as well as legal and contractual constraints.

School Districts in Study

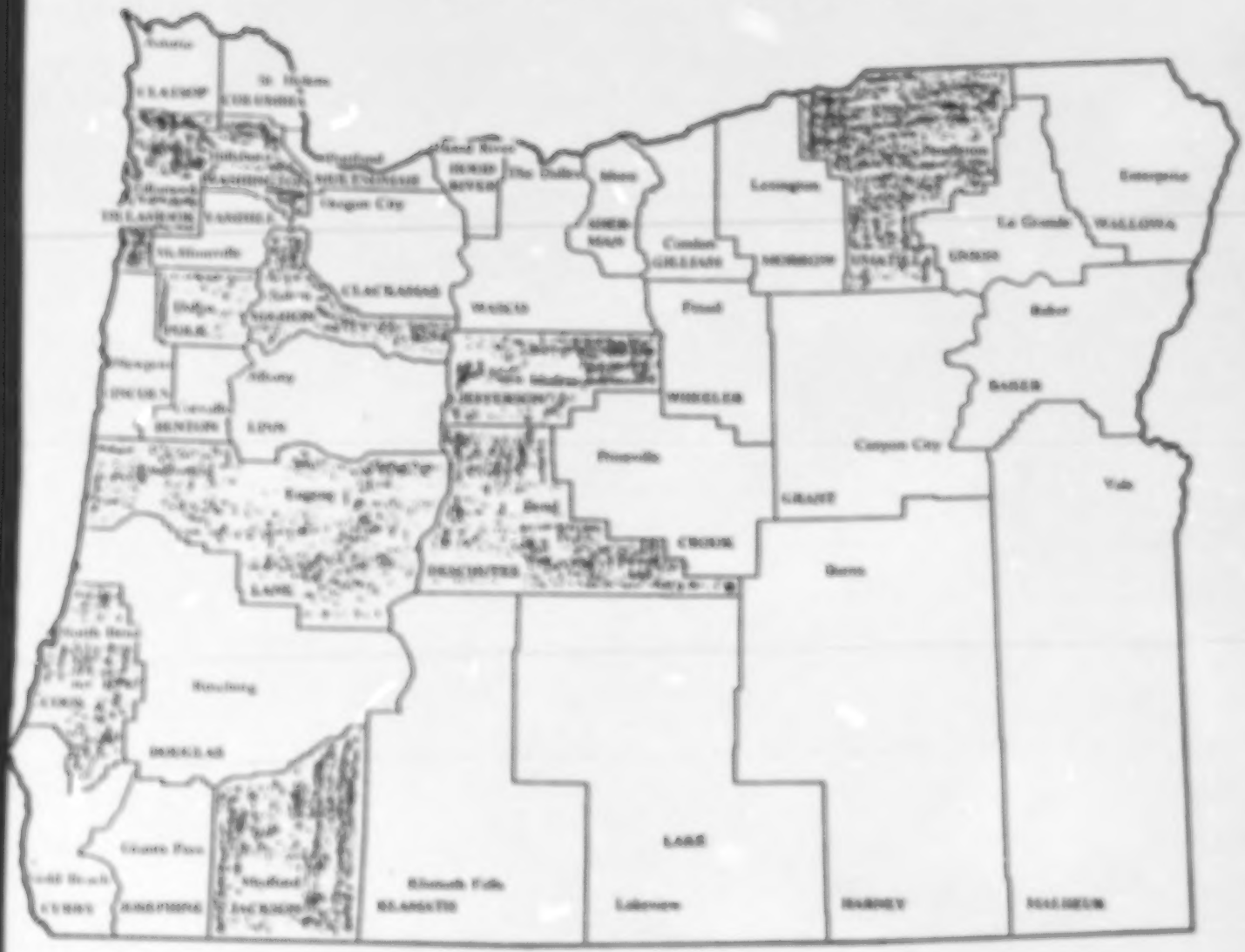
The study was designed to take advantage of a unique data set containing detailed budget information from school districts in Oregon. The data set is maintained by the Oregon Total Information System (OTIS), a consortium of approximately one hundred school districts, which provides information management and data processing services to its members. These districts are a reasonably representative cross section of districts in the state as measured by student enrollment, geographic location, organizational type (unified, elementary, high school, and county districts), and wealth. For those districts which subscribe to the consortium's business services component, OTIS maintains their complete budget records in its computer files.

District Selection

From all of the districts which belong to OTIS a subset was selected to be included in the study. The criterion for selection was the availability of complete expenditure data in the OTIS files for the years 1978-79 and 1981-82, the period covered in the study. The number of eligible districts was reduced from the total number of member districts due to several factors: lack of 1978-79 data for districts joining the system after 1978-79; consolidation of several smaller districts; and incomplete

FIGURE 1

Distribution of Sample Districts in Oregon



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expenditure data resulting from some districts using only a portion of the OTIS business services package. Fifty-three districts met the selection criterion and were eligible for inclusion in the study. Several of the eligible districts refused to approve the use of their data in the study. The districts that declined to participate were all small districts and their nonparticipation did not affect the makeup of the sample. Forty-six districts were ultimately included in the study. A map showing the distribution of the sample districts in the state is provided in Figure 1.

Descriptive Data

Additional data were obtained from both the Oregon Department of Education and the Department of Revenue to provide information on certain key characteristics of the sample districts. The information on each district included the average daily membership, assessed value of taxable property per pupil, current expenditures per pupil, local tax base as a percentage of total tax levy, Title I pupil count as a percentage of total enrollment, and county unemployment percentage. These data were collected for both the 1978-79 and 1981-82 school years, and were used in a later descriptive analysis of the sample districts.

District Budget Data

Oregon's School Accounting System

The district budget data in the OTIS data bank are organized and maintained in accordance with the State's school accounting system. Oregon's school accounting system, which is a relatively comprehensive and advanced system, classifies all of the fiscal data of a school district according to uniform practices and procedures. School budgets are prepared from accounting data and presented in a format based on the accounting system.

The organization of the school accounting system reflects the way in which school, school personnel, state officials, and the general public receive information and make decisions about district fiscal affairs.

A central feature of school accounting systems is the chart of accounts which provides a categorization and detailed coding of all types of district financial data. Of the various types of financial transactions of school districts, expenditures are among the most important for planning and implementing district operations. District budgets are prepared in terms of planned expenditures for the upcoming fiscal year. Once approved by the local school board, the budgeted expenditures give the district the authority to spend monies in the manner specified. During the year, the expenditure accounts are used to record all actual expenditures of district funds. For planning school district programs and services, as well as for controlling district operations, the expenditure accounts and the information that they provide are of critical importance.

Expenditure Classifications

The significance of the expenditure data has led to a detailed classification system to record and report school district expenditures. A multi-level categorization of expenditures is used in Oregon (Oregon Department of Education 1980) and in many other states as well. Each expenditure is classified along several dimensions in order to be able to group similar expenditures and to allow an analysis of district spending. The Oregon school accounting handbook, Program Budgeting and Accounting Manual for School Districts, identifies five dimensions of classification for each expenditure--fiscal year, instructional organization, fund, function, and object of expenditure. A fund is a fiscal and accounting entity with a self-balancing set of accounts; all school districts have several funds for

different management and legal requirements. Function refers to the purposes for which the expenditure is made; expenditures made for similar purposes are classified under similar functions. Object of expenditure is to identify the particular item or service purchased. Both the function and object classification systems have several levels involving a primary set of classifications and one or more sublevels of increasing specificity under each of the primary designations. Accounting codes are attached to each item in the classification system to allow it to be uniquely identified. A description of the data selection and organization used in the study is given below.

Fiscal Year Data from 1978-79 and 1981-82 were used in the analyses.

Instructional Organization The individual districts in the sample were used as the unit of analysis.

Fund The funds included in the study were the General Fund, Special Revenue Funds, Debt Service Funds, and Enterprise Funds. The data from all selected funds in a district were aggregated; no fund-by-fund analysis was conducted. Expenditure data from several funds were omitted from the analysis due to their potential for distortion among districts and their lack of use by many of the sample districts. The omitted funds were Capital Projects Funds, Internal Service Funds, and Trust and Agency Funds.

Function Six major functions were used to define the scope of the budget allocation areas to be analyzed, including Instruction, Support Services, Administration, Community Services, Interagency/Fund Transactions, and Debt Services. The bulk of the analyses concerned only Instruction, Support, and Administration and their subdivisons since the other three major functions made up only

a very small portion of the overall budget of the sample school districts. Table 1 contains a listing of the functions and subfunctions.

Object of Expenditure The object of expenditure classifications used were Salaries, Employee Benefits, Purchased Services, Supplies and Materials, Capital Outlay, and Other Objects. The expenditure data were organized for each district by object in total and also by object within each major function and subfunction. Table 2 contains a listing of the objects and subobjects used in the analyses.

Expenditure Comparisons

Using this classification scheme the expenditure data for the sample districts were organized to allow comparisons of various district expenditure decisions over the period under study. The most important comparisons were those (a) among the three major functions of Instruction, Support, and Administration at an aggregate level; (b) among the major objects of expenditure (e.g., Salaries vs. Benefits vs. Supplies vs. Equipment); (c) among subfunctions within each of the major functions; and (d) among objects of expenditure within each of the major functions. Analyses of the proportions of the budget devoted to each of these various expenditure areas provided direct evidence of the budget choices and resource allocation decisions made by school districts over the four-year period examined.

Fiscal Constraint

Definitions

Two principal features stand out from reviewing the definitions of fiscal constraint in the research literature. First, the major emphasis of the research on fiscal constraint or fiscal strain in school districts in the

Table 1

EXPENDITURE FUNCTIONS AND ACCOUNTING CODES

FUNCTION	SUBFUNCTION		SERVICE AREA	
Instruction	1100	Regular Programs	1110	Elementary Programs
			1120	Middle/Junior High
			1130	High School
	1200	Special Programs	1210	Gifted and Talented
			1220	Mentally Retarded
			1230	Physically Handicapped
			1240	Emotionally Disturbed
			1250	Culturally Different
			1260	Learning Disabilities
			1290	Other Special Programs
	1300	Adult Education		
	1400	Summer School		
Support Services	2100	Student Support	2110	Attendance/Social Work
			2120	Guidance Services
			2130	Health Services
			2140	Psychological Services
			2150	Speech & Audiology
	2200	Instructional Staff Support	2210	Improvement of Instruction
			2220	Educational Media
	2500	Instructional Logistics	2540	Operation and Maintenance of Plant
			2550	Student Transportation
			2560	Food Service
Administration	2300	General Administration	2310	Board of Education
			2320	Executive Administration
	2400	School Administration	2410	Office of Principal
			2490	Other School Administration
	2500	Business Services	2510	Direction of Business Services
			2520	Fiscal Services
			2530	Facilities Acquisition and Construction
			2570	Internal Services
	2600	Central Services	2610	Direction of Central Services
			2620	Planning, Research, Development and Evaluation
			2630	Information Services
			2640	Staff Services
			2650	Statistical Services
			2660	Data Processing Service
Community Services				
Interagency/Fund Transactions				
Debt Services				

Table 2

OBJECTS OF EXPENDITURE AND ACCOUNTING CODES

OBJECTS		SUBOBJECTS	
100	Salaries	110	Regular Salaries
		120	Temporary Salaries
		130	Overtime Salaries
		140	Sick Pay
200	Employee Benefits	210	Public Employees Retirement System
		220	Social Security
		230	Employee Insurance
		290	Other Employee Benefits
300	Purchased Services	310	Professional and Technical Services
		320	Property Services
		330	Student Transportation
		340	Travel
		350	Communication
		360	Printing and Binding
		370	Tuition
		380	Freight and Drayage
		390	Other Purchased Services
400	Supplies and Materials	410	Supplies
		420	Textbooks
		430	Library Books
		440	Periodicals
500	Capital Outlay	510	Land
		520	Buildings
		530	Improvements Other than Buildings
		540	Equipment
		550	Vehicles
		560	Library Books
		590	Other Capital Outlay
600	Other Objects	610	Redemption of Principal
		620	Interest
		630	Housing Authority Obligations
		640	Dues and Fees
		650	Insurance and Judgments
		690	Miscellaneous Objects

United States over the past decade has been on declining enrollment. Consequently, most researchers in this area include the concept, if not the term, enrollment decline in their definition. Second, there is no single agreed upon definition for describing and measuring fiscal strain. Various terms are used to label this phenomenon, such as retrenchment, cutback management, budget restriction or reduction, and management of decline.

Decline as a concept in the organizational literature "is used to denote a cutback in the size of work force, profits, clients, etc. This reflects the case where an organization's command over environmental resources is reduced...the total market shrinks" (Whetten 1979). An example which is used is a decrease in a school district's enrollment. Duke and Cohen (1979) identify decline and constraint in school districts as retrenchment, "a decline in the amount of real resources available per pupil in public education. This decline can come about through a cut in funds per pupil, declining enrollment, and/or inflation." Zerchykov (1982) views fiscal constraint as a decrease in enrollment and/or decrease in the rate of growth in public expenditures for schools, "organizational shrinkage caused by enrollment decline, or decline in funding, or both." Hentschke and Yagielski (1982a) state that fiscal strain is present when "conditions over which school boards and superintendents have no direct control, change in such a way as to reduce their discretion, and the resulting new alternatives available to them are, as a group less preferable than those facing them before conditions changed." Boyd (1982) sees decline as a policy problem "highlighting the tension which exists in public policymaking between criteria of efficiency and criteria of consensus and compromise. This is so because decline (or contraction in size, scope or funding of organization operations) calls attention to a need for efficiency which is less salient in the midst of the expansion and slack resources usually found under conditions

of growth."

Fiscal Constraint Ratio

The objective of this study was to compare the resource allocation decisions of districts under varying degrees of fiscal constraint. Consequently, the concept of fiscal constraint used in the study was a relative one which allowed each district to be ranked according to the extent to which it had experienced fiscal constraint between 1978-79 and 1981-82. This required an indicator of fiscal constraint which was measurable across all districts during the period under study. Further, the measure was designed to focus on the outcomes of fiscal constraint, not its causes. The definition established was similar to the one used by Duke and Cohen, a comparison of the resources available per pupil in the sample districts from the beginning to the end of the four-year period. A measure termed the Fiscal Constraint Ratio (FCR) was defined and calculated for each district. The FCR was defined as the ratio of the current expenditure per pupil in 1978-79 divided by the current expenditure per pupil in 1981-82.

(1) $$FCR = \frac{\frac{\text{Total District Edpenditures in 1978-79}}{\text{Average Daily Membership in 1979-79}}}{\frac{\text{Total District Expenditures in 1981-82}}{\text{Average Daily Membership in 1981-82}}}$$

With this measure, the higher the ratio the greater the degree of fiscal constraint experienced by the district.

This definition does not adjust the expenditure levels for the effects of inflation as suggested by Duke and Cohen. This would be a proper modification, but one difficult to accomplish appropriately with the data which were commonly available for each district in the study. However, a partial inflation adjusted FCR was for each district to test its possible

effect. The adjusted FCR was an attempt to correct the original FCR, at least partially, for inflation and the amount of real resources available for each school district. The adjustment was done by dividing the FCR by the ratio of the average teacher salary in 1978-79 to the average teacher salary in 1981-82 for each district. While not a perfect correction, it did account for price level changes for the largest expenditure item in the districts' budgets. The results, although yielding different numerical values for the fiscal constraint ratios, remained relatively consistent across the sample districts. The adjusted FCRs were also substituted in the later statistical analyses to test their influence on the final results; no significant changes in the outcomes were found. As a result, the original FCRs (unadjusted) were used in all analyses in the study.

The results of the FCR calculations are listed in Table 3 and illustrated in Figure 2. The bulk of the districts (29 out of 46) were clustered in an FCR range from 0.66 to 0.73. This translates into a growth in current expenditures per pupil of between 37 percent and 52 percent for most districts from 1978-79 to 1981-82. Both the mean FCR for the sample districts and the FCR for the state as a whole were 0.69 over this period (or a 44 percent growth in current expenditures per pupil). Smaller numbers of districts in the sample had FCRs just below or just above this range. Finally, there were extreme outliers at both the low and high ends. Thus, there was a range of fiscal constraint experienced among the sample districts, but stringent fiscal constraint was more the exception than the rule. For example, a FCR of 0.69, the mean value for the sample districts and the state, reflects a compound growth rate for current expenditures per pupil of 12 percent per year over the study period. By comparison, the State Consumer Price Index increased approximately 28 percent during this same period which represents a compound growth rate of less than 9 percent

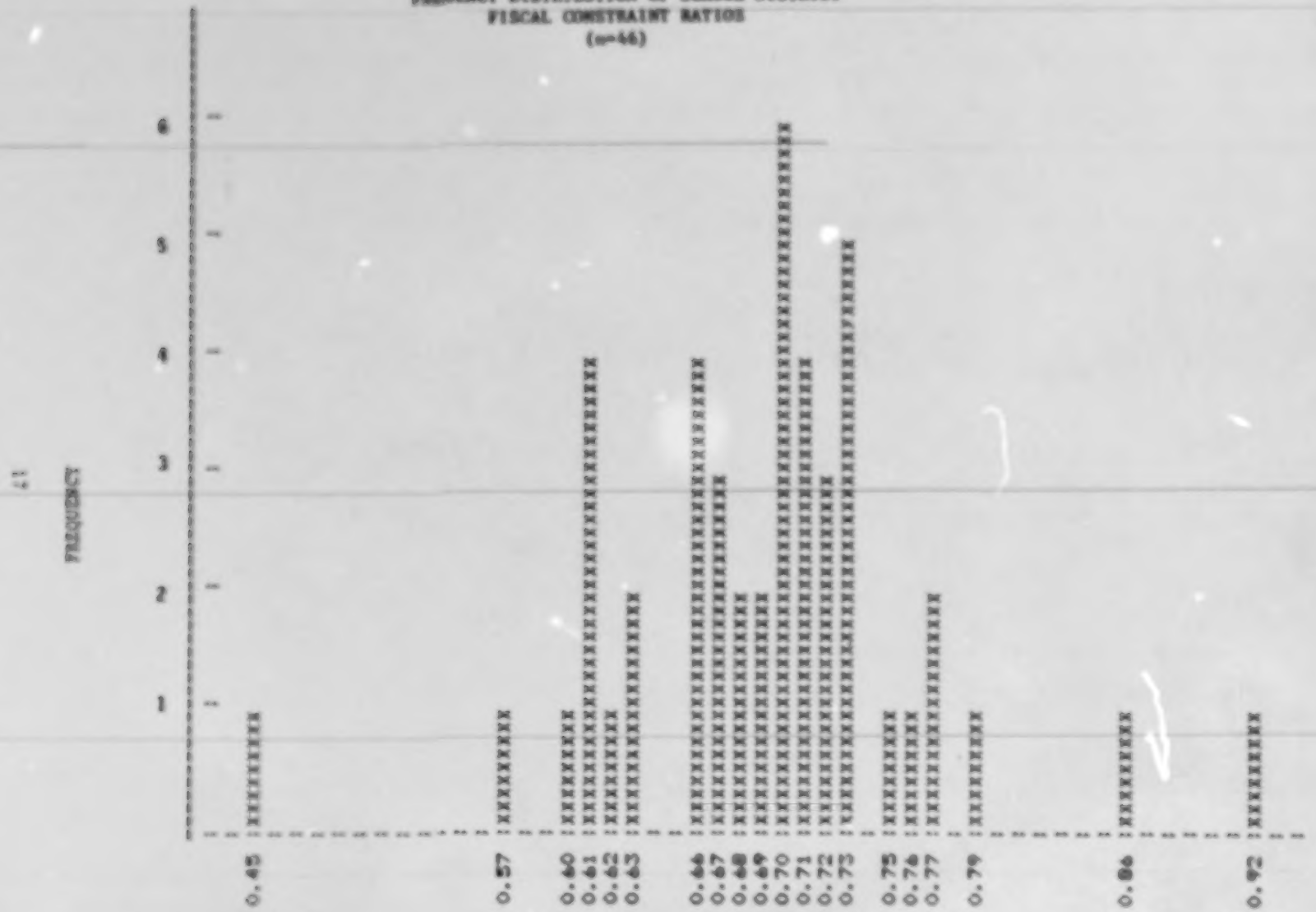
Table 5

SCHOOL DISTRICTS AND FISCAL CONSTRAINT RATIOS

District	Fiscal Constraint Ratio	4 Year % Increase	Compound Annual Growth Rate
1	.448	123%	31%
2	.568	76%	21%
3	.595	68%	19%
4	.606	65%	18%
5	.607	65%	18%
6	.609	63%	18%
7	.613	63%	18%
8	.625	60%	17%
9	.632	58%	16%
10	.633	58%	16%
11	.638	52%	15%
12	.639	52%	15%
13	.664	51%	15%
14	.664	51%	15%
15	.667	50%	15%
16	.667	50%	15%
17	.672	49%	14%
18	.676	48%	14%
19	.684	46%	14%
20	.686	46%	14%
21	.688	45%	13%
22	.695	44%	13%
23	.698	43%	13%
24	.699	43%	13%
25	.701	42%	13%
26	.703	42%	13%
27	.704	42%	13%
28	.710	41%	12%
29	.710	41%	12%
30	.712	40%	12%
31	.714	40%	12%
32	.717	39%	12%
33	.717	39%	12%
34	.723	38%	11%
35	.726	38%	11%
36	.727	37%	11%
37	.727	37%	11%
38	.731	37%	11%
39	.732	37%	11%
40	.752	33%	10%
41	.755	32%	10%
42	.772	29%	9%
43	.772	29%	9%
44	.792	26%	8%
45	.863	16%	5%
46	.919	9%	3%
Sample District Average	.692	45%	13%
State Average	.690	45%	13%

FIGURE 2

FREQUENCY DISTRIBUTION OF SCHOOL DISTRICT
FISCAL CONSTRAINT RATIOS
(n=46)



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annually. A year-by-year comparison is shown in Table 4. While the CPI is an imperfect measure of the cost of education, this comparison does indicate that elementary and secondary education expenditures fared well in a time of general economic hardship in the state.

At this point a correlational analysis was carried out with FCR and the 1981-82 district characteristics (average daily membership, assessed value per pupil, current expenditures per pupil, local tax base as a percentage of the total tax levy, percentage of Title I pupils, and county unemployment percentage). The results are shown in Table 5. No strong relationships were found between FCR and any of the individual characteristics. However, several of the correlation coefficients, although modest, did point toward interesting relationships. For example, the percent of pupils classified as Title I eligible and the county unemployment rate, both measures of economic conditions in a district, were positively correlated with the FCR. On the other hand, a wealth measure, assessed value per pupil, had a negative relationship with FCR indicating the wealthier the district the less fiscal constraint it experienced.

Causes of Fiscal Constraint

Fiscal constraint as defined in this study means a reduction in current expenditures per pupil relative to other districts. This measure was affected by events that changed either or both the current expenditures and student enrollment of the district (Equation 1). Those aspects which affected the expenditure component included inflation; reduced local, state, or federal revenues; and mandates from federal and state levels requiring new services. The major influence on student enrollments has been the decline in the school age population.

Table 4

EDUCATION SPENDING IN OREGON COMPARED WITH INFLATION

Year	State Average Spending $/Pupil	State Average Spending % Change	Portland CPI Index	Portland CPI % Change
1978-79	$2,010	-	227.9	-
1979-80	$2,241	11.5%	252.2	10.7%
1980-81	$2,581	15.2%	279.2	10.7%
1981-82	$2,891	12.0%	290.6	4.1%
4 Year Change	$881	43.8%	62.7	27.5%
Annual Growth Rate		13.0%		8.5%

Sources: Oregon Department of Education, "Estimated Current Expenditures Per Pupil," 1978-79 through 1981-82.

U.S. Department of Labor, Bureau of Labor Statistics, News, "Portland Metropolitan Area Consumer Price Indexes," November 1983.

Table 5

CORRELATION COEFFICIENTS FOR FCR AND DISTRICT CHARACTERISTICS

District Characteristics	ADM 82	CE/ADM	AV/ADM	TB/TL	% Title I	Unemp %
FCR	-.07	-.09	-.18	.20	.26	.13

FCR = Fiscal Constraint Ratio

ADM 82 = Average Daily Membership in 1981-82

CE/ADM = Current Expenditures per Pupil in 1981-82

AV/ADM = Assessed Valuation per Pupil in 1981-82

Tax Base/Total Levy = Proportion of Total Tax Levy Not Requiring Voter Approval in 1981-82

% Title I = Percent of District's Pupils Classified as Title I Eligible in 1980

Unemp. % = County Unemployment Percentage in 1981-82

Prior Research Findings

For twenty years, educational research has focused on school growth, compensatory education programs, and quality of instruction, concerns which were identified as the most pressing educational problems nationwide. However, as school districts experienced the increasingly negative effects of declining enrollments and fiscal health, educational researchers began studies of school decline. In recent years, studies of fiscal constraint in school districts have identified several common causal factors. Doherty and Fenwick (1982), for example, found that reasons for fiscal strain were inflation, reduction in federal and state funds, new initiatives in desegregation, rapidly expanding service requirements in bilingual and special education, teacher salary negotiations, and the need to ask taxpayers for increasingly larger revenues.

Inflation. Inflation has been a critical economic factor in the increasing fiscal constraint faced by school districts. Even with no improvements in programs, inflationary cost increases cause a district's budget for the next year to be larger than the previous year in order to provide the same level of service. Conversely, a district with the same budget level for the next year has to reduce services in some fashion in order to absorb the inflationary cost increases. A comprehensive National Institute of Education report (1975) noted that per-pupil costs increased because of semi-fixed costs of school plant operation and maintenance, the fixed nature of pension expenses, the rise in average salary levels resulting from retaining higher salaried senior teachers and releasing lower salaried younger teachers during times of reductions in force, and the substantial time lag in budget adjustment to the conditions and causes of decline. Hentschke and Yagielski (1982a) also indicate that inflation is one of the primary causes of fiscal strain with the major cost increases having occurred

in personnel salaries, fuel, and health insurance.

Similarly, a report from the American Association of School Administrators (1980) identified staffing costs, fringe benefits, energy, and insurance costs as important budget areas where costs have risen rapidly. The growth of collective bargaining and the strength of teacher associations have combined to push salary and benefit expenses to increasingly higher levels. Since salary-related costs are by far the largest single budget item, these demands have had an enormous impact on the budget. Seniority provisions, another negotiated personnel policy, generally have required districts to maintain the more experienced and expensive staff in times of teacher layoffs.

Decreased State and Federal Revenues. Another important factor in school district fiscal stress has been reduced or more difficult to obtain revenues from all sources. In the past several years, there have been serious shortfalls in state revenues which have limited and sometimes reduced the amount of monies available for education; in 1981 and 1982 over half of the states experie[illegible] revenue shortfalls and budget restrictions affecting state aid to education (Education Week, 1/19/83). Several authors link the causes of fiscal constraint to the Reagan administration's efforts to redefine the federal role in education. Morgan (1982) ties the causes of fiscal strain to the Reagan era of federalism. Clark and Amiot (1981) identify five trends set in motion by the federal government that serve to increase fiscal constraint in school districts: diminution of the federal funds for education; deregulation and fewer federal regulations; decentralization through the use of block grants and consolidation of programs; the (proposed) disestablishment of the departmental status for education; and a de-emphasis of education as a national priority. (The latter point has undergone a significant shift, in the rhetoric at least,

since its writing.) Although initially successful, the new federal initiative more recently has run into Congressional resistance to further cuts, and the federal funds going to education for FY 1985 show a slight increase over the previous year (Education Week, 2/1/84). The net result, however, of the state and federal actions has been fewer dollars and slower growth in educational expenditures than otherwise would have been the case.

Mandates. State and federal mandates have placed numerous obligations on local school districts to provide new and additional services. They are seen to be contributing significantly to increased fiscal constraint of the districts. Hentschke and Yagielski (1982b) identify three causes of fiscal constraint--enrollment declines, cost or price level increases, and changes in the input mix of goods and services purchased by school districts. Legislation can force costly changes in the input mix without corresponding increases in the budget. District administrators are then forced to shift to a different and less desirable combination of inputs. State and federally mandated programs such as desegregation and busing, education for the handicapped, and services for the educationally disadvantaged require increased allocations of district resources. These programs are increasingly costly while federal support of them is declining. For example, P.L. 94-142, The Education for All Handicapped Children Act of 1975, and similar state legislation require a free, appropriate, public education for all handicapped children, an expensive and resource-consuming requirement. However, the actual federal funds for P.L. 94-142 have been well below the levels authorized in the legislation, leaving states and school districts to raise the necessary additional revenues (Hartman 1980).

Recent changes contained in the Educational Consolidation and Improvement Act of 1981 consolidated numerous federal categorical programs and offered the promise of reduced regulations and paperwork, but at the

price of reductions in the level of federal aid provided. Such reductions in federal aid result in either elimination or curtailment of programs or require additional local and state funds to ensure their survival. The limitation and loss of federal and state funds falls heavily on local school districts. In order to maintain programs and services, districts are forced to try to replace the lost funds with local revenues derived mainly from the property tax. However, local voters have been increasingly reluctant to approve additional taxes for either current district operations or bond measures (Piele 1982).

Decreased Local Revenues. At the local level, revenue capacity in many states has been affected most strongly by the tax and expenditure limitation movement. The focus of many of these efforts has been a forced reduction in property taxes--the principal local revenue source for schools. In California, a state surplus was initially able to cushion the loss of much of the local revenue, but some reductions in planned spending levels were still required. After several years this surplus was largely depleted by state "bailout" funds to school districts and other local jurisdictions, requiring further budget reductions. Other attempts at property tax relief, such as the Property Tax Relief Act of 1979 in Oregon, have reduced the amount of total state funds available to support schools by disbursing surplus funds for other purposes (Oregon Department of Revenue, n.d.). Controls enacted by public initiative and state legislatures have also been placed on spending levels, growth in spending levels, and state support for elementary and secondary education, all of which constrain local school district budgets (Thresher 1981).

Declining Enrollments. As previously noted, one of the key factors in fiscal constraint has been declining enrollments. During the thirty years of growth after World War II, school administrators were pressed to provide

facilities and programs for a rapidly growing student population. After 1970, the impact of the end of the baby boom and the subsequent lower birth rates began to be felt, creating problems for which school board and administrators were largely unprepared. Between 1969 and 1979, elementary schools lost approximately 4.4 million students. By 1976 this loss began spreading into high schools and will result in more than 3.5 million fewer students by 1990 (Abramowitz 1979).

Declining enrollments can raise public expectations for a corresponding decline in costs. When coupled with the widely publicized decline in student performance, school districts' requests for more, rather than less, money to meet inflationary pressures and make up for state and federal reductions have been met with increasing hostility. The short term effects of enrollment declines tend to increase rather than decrease operating costs, particularly to the local taxpayer. State aid is usually a direct function of enrollment, so a loss in enrollment is soon matched by a loss in state funds. Districts have limited ability to adjust classroom staffing arrangements quickly to declining enrollments. The result is that cost reductions lag behind enrollment declines (National School Boards Association 1976). Consequently, local tax increases are required if program and spending levels are to be maintained. An associated effect is that fewer students also mean fewer number of households with children in school which in turn has translated into reduced voter support in fiscal elections.

In summary, these pervasive trends and others, such as excess school building capacity and reduced turnover in the teaching staff have created significant budget problems for school districts. This is reflected in a 1982 survey by the American Association of School Administrators in which 76 percent of the district administrators responding reported that the budget problems facing their districts were more serious then than two years

previously (Hymes 1982).

Characteristics of Districts in the Study

The literature identifies numerous causes of fiscal strain, including enrollment declines, decreasing state and federal revenues, local voter resistance to budget and tax levies, and inflation. All of these were operating to a lesser or greater extent in the sample districts in the study and in the state as a whole.

Of the forty-six districts in the study, twenty-seven had fewer students enrolled in 1981-82 than in 1978-79, with the declines ranging from 0.5 percent to 16.1 percent. However, nineteen districts registered enrollment gains, ranging from 0.3 percent to 14.9 percent of total enrollment. Overall, the combined enrollments of all districts in the sample showed a 3.4 percent decline over the four-year period. By comparison, the total enrollment of the state declined 2.7 percent in this same time period. Thus, while there were enrollment declines, only about 60 percent of the districts in the sample lost enrollment and with a few exceptions the losses were not precipitous. Table 6 presents the data on enrollment changes.

Inflation is another identified cause of fiscal strain. The only statewide inflation measure calculated in Oregon is the Consumer Price Index for the Portland area. The Portland CPI grew 27.5 percent from 1978-79 to 1981-82 (Table 4). While this is not a measure of the cost changes for educational resources, it does provide a benchmark for price changes in the state.

Inflation affects educational budgets by causing districts to have to pay more money for the same resources. The effect is to increase expenditures for the same level of programs and services or to reduce the level of programs and services offered for the same expenditure amount. As

Table 6

PERCENTAGE CHANGES IN ENROLLMENTS, AVERAGE TEACHER SALARY, AND DISTRICT EXPENDITURES 1978-79 to 1981-82

	Average Daily Membership	Average Teacher Salary	District Expenditures
Aggregate % Change for Sample Districts	-3.4%	NA	+41.5%
Mean % Change of Sample Districts (n = 46)	-1.3%	34.2%	+43.6%
Standard Deviation	0.76%	9.0%	19.2%
Maximum % Growth	+14.9%	+13.7%	+12.1%
Maximum % Decline	-16.1%	+58.0%	+123.7%
State % Change	-2.7%	+36.2%	+46.1%

Sources: Oregon State Department of Education reports.
OTIS budget data.

salaries form the bulk of school district budgets, the changes in salary levels are a primary cause of inflation-driven expenditure increases. In the sample districts average teacher salary increases ranged from 13.7 percent to 58.0 percent over the study period with a mean salary increase of 34.2 percent. Table 6 provides the summary of average salary data for the sample districts.

The overall expenditure levels rose in all sample districts. This was no surprise as the current expenditure per pupil increased in all districts (All FCRs were less than 1.0), and enrollment tended toward slight declines. Nevertheless, there was generally substantial growth in the total expenditures of each district, with the aggregate expenditures of all districts increasing by 41.5 percent over the 1978-79 to 1981-82 period. The increases, as shown in Table 6, range from 12.1 percent to 123.7 percent. (The latter figure was caused by the construction of a new junior high school in the district.) Statewide, reported current expenditures increased 46.1% in the same period. Thus, the average of the sample districts is similar to the st e results, while a range of fiscal constraint is in evidence. In general, however, fiscal constraint was not particularly binding for most districts either in the sample or statewide.

Response to Fiscal Constraint

When faced with the need to respond to fiscal strain, districts have two major options: increase revenues and/or reduce costs. Since declining state and federal revenues are both largely out of the control of local administrators and an important cause of fiscal strain, this generally leaves cost reduction and raising local property taxes (an increasingly difficult action) as the only actions to which most school districts have recourse. This section of the study investigates what actions school districts have

taken in dealing with fiscal strain. The expectations at the outset were that school districts would have protected areas that were either central to their primary missions or required by state and federal mandates. As a result, it was anticipated that in districts facing fiscal constraint the instructional areas would have suffered less retrenchment than areas such as support services and administration. This section contains a brief review of some of the findings from prior research on districts' responses to budget pressures, a description of the methodology used in this study to examine district responses to fiscal constraint, a presentation of the analyses of district budget allocation patterns, and associated programmatic measures in the sample districts from 1978-79 to 1981-82.

Prior Research Findings

Much of the research investigating the reactions of school districts to fiscal strain has concentrated on the responses to enrollment declines, a primary cause of fiscal constraint. Zerchykov (1982) sums up the findings as follows: "The evidence suggests that declining enrollments have not provided for any documented opportunities for creative instructional renewal of American public schooling. Nor has decline precipitated any radical dismantling or deterioration of educational quality." From his review of the research several general patterns emerge. The level of strain or fiscal constraint in school districts experiencing decline depended on changes in district wealth, state aid, and other local and national factors. Also, certain categories of costs rose on a per-pupil basis with declining enrollment: instructional and administrative salaries, plant maintenance, and fixed charges. Districts in decline have had "persistent patterns of staff changes" with staff decreases occurring more slowly than staff increases occurred during periods of growth. Classroom teacher positions

declined to a greater extent than administrative positions and those of other nonclassroom professional staff. Further, as seniority determined layoffs, the median age level of school district teachers increased.

To investigate school governance in an era of retrenchment Boyd (1982) conducted a study over the period from 1964 to 1981 of fifteen suburban school districts located in two metropolitan areas. He found a major result of decline and retrenchment in school districts to be the reduction or elimination of many enrichment programs, extracurricular activities, and social services offered by the schools.

> "Whether parents, school board members, and administrators believe this is detrimental, neutral, or beneficial to the overall functioning of public education depends on what functions and goals of schooling they hold to be of central importance. There was strong disagreement among those we interviewed over whether the core curriculum of the 'Three Rs' is the overriding concern, or whether, as many educators believe, secondary social and educational services are also of equal importance for the proper development of children. Those who believe schools should concentrate on the core instructional functions of the Three Rs are less likely to bemoan the cutting back of what they see as 'fat,' 'fringes,' and 'frills.' But there is also dispute over what constitutes such educational 'icing.' In the view of some parents and school officials, programs such as bilingual education, many forms of special education, counselors, social workers, and hot lunch programs, are peripheral to the core instructional tasks of the schools."

His research further indicated that the erosion of curriculum and associated activities and services was occurring sooner and deeper in lower socioeconomic school districts as compared with districts of higher socioeconomic status. Boyd sees the most consistently negative effect of decline in the impact on the teaching profession. The loss of young teachers through reduction-in-force policies, the declining quality of entering teachers, the shift of teachers away from their fields of speciality for job security, and the general lowering of job satisfaction and professional morale are all believed to be contributing to a decrease in the quality of

education.

Dembowski (1979, 1980) surveyed school districts nationwide to study the effect of enrollment changes on instructional programs. Approximately two-thirds of the districts which responded had enrollment declines (some dramatic), while the others showed some growth. The most visible effects of declining enrollments according to Dembowski were economic. "The primary financial problem faced by school districts with declining enrollments [and increasing costs] is how to reduce expenditures in proportion to decreased revenues. Revenues are tied to enrollments because of the state aid formulas, and the essential task is to reduce expenditures with enrollments." Dembowski's research indicates that the basic core subjects such as language arts, social studies, and the sciences suffered from loss of enrollment in courses coinciding with overall district enrollment drops, while special education, compensatory programs, and vocational education courses showed the largest increases in course enrollments, despite overall decline in districts' enrollment. Foreign language courses experienced the greatest enrollment losses. Staff retention and reduction in force patterns followed patterns of student enrollment in courses: staff reductions were greatest in foreign languages and staff increases were found in special education. Districts undergoing decline shifted staff members from school to school and increased the use of part-time staff. A greater number of teachers in these districts were expected to have certification in more than one subject area, and the median age of teachers was higher in districts in decline where the number of younger staff members had been reduced.

Many investigators of fiscal constraint and decline in school districts have urged school district planning. "Dwindling enrollments usually produce a ripple-in-the-pond effect: one toss of the pebble causes countless concentric wavelets to form outward....The need for teachers,

classroom space, supervisors, principals and other administrators narrows" (Keough 1975). School closure is seen by Keough as the main problem resulting from declining enrollment and loss of revenue. School closure and moving staff and pupils to other buildings can cause problems with curriculum and program continuity. Staff morale can also suffer with the forced reductions in the teaching staff, bumping based on seniority, teaching assignments out of speciality areas, and the transfer of some remaining teachers to other schools. Adjustment of students and community to the closure of schools is not easily accomplished and a loss of community support for schools can result.

Other research on fiscal constraint centers on the problems-as-opportunities view of the situation. "While not typically based on generalizable research evidence, this literature is no less empirical in so far as much of it is written as observations, caveats, suggestions, and 'memorabilia' from the 'firing line.' The advice prescribes rather than systematically describing practice" (Zerchykov 1982). Duke (1982) lists "six ways in which the present climate of fiscal instability may give rise to benefits"; these are improved instruction, greater quality control, better coordination of youth services, more shared responsibility of the decision options by policymakers, stress reduction for educators, and increased commitment from teachers. Culbertson (1977) holds that "every organization, particularly in prosperous times, develops inefficient operations." He sees that within adverse conditions there are opportunities for change, clarifying goals and issues, the efficient use of human and financial resources, and a move toward coordination and cooperation between members of the school district community.

A recurring theme in the studies of school district decline is the effect on educational equity. Decision-making during times of retrenchment

"gives rise to deliberations about which youngsters are more deserving of an education" (Duke 1982). With reliance on outside funding and decreasing federal and state support compensatory programs are losing ground, and in some cases are being eliminated. "That schooling has come to be regarded as a zero-sum game, where one group benefits at the expense of another, seems inconsistent with the nation's equal egalitarian doctrines" (Duke 1982).

Methodology

The principal empirical analysis of the study consisted of the examination of budget allocation patterns within the sample school districts to identify which components of the district's educational programs were restricted and which were preserved or enhanced over a four year period, 1978-79 to 1981-82. As previously noted, none of the school districts in the sample had actual reductions in expenditures, and most had expenditure levels which grew at a greater rate than inflation. Consequently, in analyzing budget allocation decisions, the concept of budget restrictions was broadly defined.

When a district did not have sufficient funds to meet all proposed expenditures, choices had to be made among competing areas. Similarly, when the district wished to enhance a particular area, funds had to be directed toward that area and away from possible uses in other areas. As a result, budget allocation decisions represented relative selections among different programs and services. Of interest to the study is how each area fared in 1981-82 in comparison with its previous importance in the budget in 1978-79. Budget restriction was considered as a reduced percentage share of the district's budget in 1981-82. An increased percentage share of the budget in the final year was taken as a decision to increase the budget allocation to a given area.

The budget areas which were examined and compared were the six major functions of Instruction, Support Services, Administration, Community Services, Interagency/Fund Transactions, and Debt Services and the major object of expenditure categories of Salaries, Employee Benefits, Purchased Services, Supplies and Materials, Capital Outlay, and Other Objects. These areas were defined by the accounting function and object expenditure groupings described previously.

Types of Analyses

Eight separate analyses were conducted using these categories. An individual analysis consisted of a set of particular budget categories to be compared. A nesting approach was used in organizing the various analyses. First, an aggregrate function analysis was conducted which examined the changes in budget allocations among the major functional budget categories. Next, the most significant of the major budget functions were selected for further analyses--Instruction, Support Services, and Administration. These three categories were further analyzed for changes in budget allocations among their subfunctions:

Instruction	Regular Programs Special Programs
Support Services	Student Services Instructional Staff Services Instructional Logistics (Operation and Maintenance of Plant, Student Transportation, Food Service)
Administration	General District Administration School Administration Business Services

Another analysis was done using the major object of expenditure budget categories as the basis for examining changes in budget allocations. Finally, the function and object groupings were combined by analyzing budget

allocation changes among the major object groupings within each of the major functions. Table 7 lists these analyses and illustrates the nesting procedure. This particular analytical strategy was selected because it provided information to examine and interpret district budget decisions and practically all districts reported information in these categories. Numerous other and more detailed analyses of the budget allocation patterns among further subdivisions of both the function and object of expenditure classifications were conducted. However, the number of districts reporting expenditures in subcategories dropped off rapidly in most of the lower level analyses conducted. For example, a comparison of the differences in the percentatges of the regular instruction budget allocated to elementary, middle/junior high schools, and senior high schools was done, but some districts in the sample were elementary only, others high school only, and others were unified districts. Since the analyses were based on the percentages of the budget allocated to various categories, the non-use of categories by some districts distorted not only the particular category being used, but those other categories in the analysis as well.

Analytical Procedures

To carry out each analysis, the budget categories of interest for that analysis were first identified. Then, on a district-by-district basis, all of the expenditures under each budget category were summed to arrive at a dollar expenditure amount for each budget category. This was done for both 1978-79 and 1981-82. Next, the expenditures from all budget categories in the given analysis were summed to obtain a total expenditure amount for the analysis. Then the percentage of the total expenditure amount devoted to each budget category was calculated. These percentages totalled 100 percent for a given analysis. This provided the percentage of the budget allocated

Table 7

BUDGET CATEGORY ANALYSES

Analysis	Budget Categories Included	Type
1	Instruction, Support Services, Administration, Community Services, Interagency/Fund Transactions, Debt Services	Aggregate Functions
2	Regular Programs, Special Programs	Instructional Subfunctions
3	Student Services, Instructional Staff Services, Instructional Logistics (Operation of Plant, Student Transportation, and Food Service)	Support Services Subfunctions
4	General District Administration, School Administration, Business Services	Administration Subfunctions
5	Salaries, Employee Benefits Purchased Services, Supplies and Materials, Capital Outlay, and Other Objects	Aggregate Objects
6	All Major Object of Expenditure Categories for Instructional Expenditures Alone	Objects within Instruction
7	All Major Object of Expenditure Categories for Support Services Expenditures Alone	Objects within Support Services
8	All Major Object of Expenditure Categories for Administration Expenditures Alone	Objects within Administration

to each budget category in the analysis for 1978-79 and 1981-82. The difference in percentages allocated to a given budget category was obtained by subtracting the 1978-79 percentage of a given category from the 1981-82 percentage. From these procedures and calculations a data file was prepared for each analysis; the file contained the following data by district: district code number, district name, fiscal year, FCR, analysis number, function code, object code, 1978-79 expenditure amount, percent 1978-79 expenditures in that budget category of the total expenditures for all budget categories in the analysis, 1981-82 expenditure amount, percent 1981-82 expenditures in that budget category of the total expenditures for all budget categories in the analysis, and the difference between the 1981-82 percent and the 1978-79 percent. Frequency distributions of the function and object codes were computed to ensure that these accounting codes were used by all or most districts to avoid distortions in the statistical results.

In each analysis a statistical procedure--multiple regression using hierarchical inclusion--was utilized to explain the changes in budget allocations for a given budget category between 1978-79 and 1981-82. A separate multiple regression equation was calculated for each budget category in the given analysis using the percentage change as the dependent variable. The explanatory or independent variables were fiscal constraint ratio (FCR) and the beginning (1978-79) percentage allocation for the category. The general regression equation is shown on the following page.

(2) $(\%\ 82 - \%\ 79) = b_1\ FCR + b_2\ \%\ 79 + c$

where (% 82 - % 79) = the percentage of the budget allocated to a budget category in 1981-82 minus the percentage of the budget allocated to that category in 1978-79;

FCR = Fiscal Constraint Ratio, which is defined as:

$$\frac{\text{Expenditure per Student in 1978-79}}{\text{Average Daily Membership in 1978-79}}$$

$$\frac{}{}$$

$$\frac{\text{Expenditure per Student in 1981-82}}{\text{Average Daily Membership in 1981-82}}$$

% 79 = the percentage of the budget allocated to a budget category in 1978-79;

b_1 = the regression coefficient of FCR which represents the expected change in (%82 - %79) with a change of one unit of FCR when %79 is held constant;

b_2 = the regression coefficient of %79 which represents the expected change in (%82 - %79) with a change of one unit of %79 when FCR is held constant; and

c = a constant in the regression equation.

The results of interest were the coefficient of the FCR (b_1) and the proportion of the variance explained by the inclusion of the FCR in the equation. A large value of the FCR coefficient (say greater than about .10 or less than -.10) indicated that there was a noticeable relationship between the degree of fiscal constraint faced by the sample districts and the change in the percentage of the budget which they had allocated to that budget category. A positive sign for the coefficient meant that an increase in the FCR (the district was under more fiscal constraint) was associated with a gain in the percentage of the budget allocated to that budget category. Conversely, a negative sign for the coefficient meant that as the FCR (and district fiscal constraint) increased, the budget category share of the budget was reduced. Values of the FCR coefficient around zero indicated that there was no relationship between fiscal constraint and changes in the

percentage of the budget allocated to that budget category.

In principle, the b_1 values in a given analysis should sum to zero. That is, when there is a large positive b_1 value for one budget category in an analysis, it has to be counterbalanced by one or more negative b_1 values for other budget categories in the analysis. This is because in a given analysis the changes in the budget percentage allocated to the different budget categories between 1978-79 and 1981-82 are not independent from each other. Any increases in budget share have to be matched with decreases in budget shares from other categories--a zero sum game in terms of percentages. Therefore, it is the overall pattern of budget percentage changes, as measured by the b_1 values, that is as important to the interpretation of the results as are any large individual b_1 values for particular categories. In the results of this study, the minor departures from the zero sum for b_1 values in each of the analyses which were experienced were due primarily to an irregular distribution of the percentage change values around zero and rounding errors.

The proportion of the variation in the changes of the percentage of the budget allocated to the budget category explained by the FCR variable is a measure of the strength of the explanatory power of FCR. It is indicated by the R^2 change value for FCR calculated in the multiple regression equation. A high R^2 value indicates that FCR does explain a large proportion of the variation in the percentage change in the budget category between the two years, while a low value indicates that FCR explains little.

Overall Budget Allocation Patterns by Major Function

The results of the multiple regression equations using equation (2) for analyses #1 - #8 are shown in Tables 8 - 11. Analysis #1 (Table 8) gives the overall view of the allocation patterns among the aggregate function

Table 8

ANALYSIS #1 -- AGGREGATE FUNCTIONS

FUNCTION	n	MEAN BUDGET SHARE 1979 (% 79)	b_1	R^2 CHANGE FOR FCR
Instruction	46	54.2%	.315	.217
Support Services	46	30.4%	-.004	.000
Administration	46	13.0%	-.299	.159
Community Services	46	0.1%	-.003	.007
Interagency/Fund	46	1.3%	-.005	.001
Debt Service	46	1.0%	-.004	.000

categories. All districts in the sample used each of the function areas (n = 46). On average, districts allocated over half of their budgets to Instruction, 30 percent to Support Services, and 13 percent to Administration; the other three categories represented minor portions of the overall budgets. Of the six major functions, only two had a large regression coefficient for FCR ($b_1 > .10$ or $< .10$); these were Instruction with $b_1 = .315$ and Administration with $b_1 = -.299$. All of the other categories--Support Services, Community Services, Interagency/Fund Transfers, and Debt Service--had regression coefficients close to zero. This indicates that as FCR increased and districts were under greater fiscal strain, the percentage of the budget allocated to instruction increased and the percentage of the budget allocated to administration declined. Conversely, as FCR and fiscal strain decreased, the percentage of the districts' budgets allocated to instruction decreased and the percentage to administration increased. The percentage of the budget allocated to the other budget categories did not vary with district fiscal constraint. Thus the districts in the sample reacted to fiscal strain by shifting their allocation patterns toward instruction and away from administration. As fiscal constraint became less, greater proportions of their budgets were devoted to administration. This was the anticipated reaction if districts were to protect instructional programs as their top priority. However, there was not a one-to-one correspondence in percentage changes between instruction and administration; the other budget categories experienced small changes as well. The R^2 change values for FCR also matched the FCR coefficient results. FCR explained almost 22 percent of the variation in the change in the budget allocation to Instruction from 1978-79 to 1981-82 (R^2 change = .217) and 16 percent for Administration ($R^2 = .159$). These were by far the largest results for FCR in the aggregate function analysis.

Budget Allocation Patterns Within Major Functions

Analysis of Instruction Function. The next group of analyses (#2 - #4) examined the allocation patterns within each of the three principal budget functions. The results are shown in Table 9. Analysis #2 compared the allocation within Instruction between Regular Programs and Special Programs. In this analysis the overall amounts allocated to Instruction are taken as givens and what was of interest was how the available funds for Instruction were divided between regular and special programs. Special programs consisted primarily of special education programs for handicapped, but also included programs for gifted, adult/continuing education, and summer school. The results indicate that Regular Programs received priority (b_1 = .405) as school districts faced increasing fiscal constraint, while special programs suffered (b_1 = -.405). This finding is consistent with prior expectations that instructional programs central to the core instructional mission would be maintained in times of budget shortages and non-core programs would lose by comparison. However, the negative regression coefficient value for Special Programs, which contained some programs mandated by federal and state programs for districts to provide, was unexpected. Again, the R^2 change values for FCR were consistent with the findings for the FCR regression coefficient. In equations for both Regular Programs and Special Programs the R^2 changes were high (R^2 = .446), indicating that FCR accounted for almost half of the variation in the changes of the percentage allocation to these budget categories.

Other more detailed analyses within the Special Programs category were also carried out to investigate the unanticipated overall finding for this budget category, but the number of districts reporting expenditures in most subcategories was too small to yield reliable results (e.g., Gifted and

Table 9

ANALYSIS OF SUBFUNCTIONS

ANALYSIS #2 -- INSTRUCTIONAL SUBFUNCTIONS
(Overall b_1 = .315)

SUBFUNCTION	n	b_1	R^2 CHANGE FOR FCR
Regular Programs	46	.405	.446
Special Programs	46	-.405	.446

ANALYSIS #3 -- SUPPORT SERVICES SUBFUNCTIONS
(Overall b_1 = -.004)

SUBFUNCTION	n	b_1	R^2 CHANGE FOR FCR
Student Services	46	.0001	.000
Staff Services	46	-.006	.000
Instructional Logistics	46	.027	.002

ANALYSIS #4 -- ADMINISTRATION SUBFUNCTIONS
(Overall b_1 = -.229)

SUBFUNCTION	n	b_1	R^2 CHANGE FOR FCR
General Administration	46	.446	.239
School Administration	46	.354	.055
Business Services	46	-.765	.153

Talented--19 districts reporting, Mentally Retarded--24 districts reporting, Physically Handicapped--14 districts reporting, Emotionally Disturbed--11 districts reporting, Culturally Different--8 districts reporting, Learning Disabilities--28 districts reporting, and Summer School--14 districts reporting). However, the more detailed analyses did indicate that as districts' fiscal strain grew, certain special education programs did increase their allocation percentages (e.g., Mentally Retarded, Physically Handicapped, Emotionally Disturbed, and Culturally Different), while other special programs lost budget share (e.g., Learning Disabilities). This provides a confirming, although indecisive indication of the expectation that there were definite allocation choices and priorities within the special programs category as well.

Analysis of Support Services Function. The analysis of the subfunctions in the Support Services category (#3) yielded no large regression coefficients. None of the three subfunctions--Student Services, Instructional Staff Services, or Instructional Logistics--had a regression coefficient of sufficient magnitude to be of interest by itself (Table 9). This finding indicates that there was little relationship between the degree of fiscal constraint experienced by a district in the sample and changes in the proportions of the total Support Services budget allocated to the various subfunctions. The overall pattern of the b_1 values in the analysis is of interest, however. There was no difference in budgetary treatment of those Support Services directed at students, or staff, or instructional logistics activities. This is contrary to the general expectation of a hierarchy of budget priorities with Student Services the most favored, followed by Staff Services, and, finally, Instructional Logistics, which would be the most vulnerable area in the Support Services category during times of fiscal constraint. In fact, Instructional Logistics had the highest regression

coefficient in this analysis. The R^2 values were also quite low indicating that FCR had no explanatory power in this analysis. The more detailed analyses conducted for further subcategories of the Support Services area yielded no difference in the results indicating that there were no large positive and negative values which were cancelling each other out when combined into a higher level anlaysis. The results are consistent with the finding in the aggregate function analysis (#1) where the overall Support Services category was also unrelated to district fiscal constraint.

Analysis of Administration Function. By contrast to the Support Services category, all three of the subfunctions of the Administration category had relatively large regression coefficients. Both General Administration (b_1 = .446) and School Administration (b_1 = .354) had large positive coefficient values, while the Business Services (b_1 = -.756) had a large negative coefficient value. This indicates that within the overall dollars available for Administration, districts under greater fiscal strain increased the School Board, Superintendent, and School Principal funding, while areas such as Fiscal Services, Facilities Acquisition and Construction, Internal Services (Purchasing, Warehousing, Printing), Central Services (Evaluation, Planning, Research), Information Services, Staff Services (Recruiting, Staff Accounting, Inservice Training), Statistical Services, and Data Processing Services when taken together had a reduced budget share. Again, the general premise of areas favored (those closest to instruction) versus those given less priority (those performing supporting, non-instructional roles) appears to be supported. It is of interest, however, that General Administration, which is farther away from instruction than School Administration, has a higher regression coefficient value. The R^2 change results for FCR show a mixed pattern with the FCR providing the largest explanation of the variations in the percentage change

of budget allocation for General Administration and only in small proportion for School Administration. In the Administrative area, additional analyses were also conducted at lower levels of subfunctions. There were too few cases in many instances to allow a proper analysis and no definite patterns of resource allocation decisions were made evident.

Budget Allocation Patterns by Major Object of Expenditure

In the next analysis (#5), the Objects of Expenditure were aggregated across all functions. That is, the district data analyzed showed the total of all Salaries, Employee Benefits, Purchased Services, Supplies and Materials, Capital Outlay, and Other Objects regardless of the function in which they were used. This provided an overall look at the resource allocation decisions among the different objects of expenditure. The results are shown in Table 10. Again, all forty-six districts used each of the six objects of expenditure categories. The average proportion of the districts' budgets allocated to these categories ranged from a high of 61 percent to salaries to a low of 4 percent for Capital Outlay and Other Objects. Only two of the object categories had large regression coefficients--Salaries (b_1 = .401) and Capital Outlay (b_1 = -.463). These findings indicate that, overall, as fiscal strain of districts increased, the proportion of their budgets spent for salaries also increased while the budget share of capital outlay decreased. The other budget categories showed little relationship with fiscal constraint. The findings for R^2 change for FCR also indicate that its explanatory power was greatest for salaries and capital outlay (R^2 = .379 for Salaries and .244 for Capital Outlay). This outcome is generally consistent with the expectation of favoring instruction over administration as the bulk of salaries go for teachers (instruction), while the bulk of capital outlay is coded in the accounting

Table 10

ANALYSIS #5 -- AGGREGATE OBJECTS OF EXPENDITURE

FUNCTION	n	MEAN BUDGET SHARE 1979 (% 79)	b_1	R^2 CHANGE FOR FCR
Salaries	46	61.3%	.401	.379
Employee Benefits	46	13.8%	.060	.055
Purchased Services	46	9.6%	.056	.027
Supplies and Materials	46	7.6%	-.008	.001
Capital Outlay	46	3.9%	-.463	.244
Other Objects	46	3.8%	-.001	.000

structure as an administrative cost.

Budget Allocation Patterns by Object Within Major Functions

Analysis by Object Within Instruction. The last three analyses in this series combined function and object of expenditure budget categories by analyzing the distribution of of the districts' budgets among the object categories for each of the major functions--Instruction, Support Services, and Administration. The results are given in Table 11. Within the Instruction category (#6) there were no objects with large regression coefficients. This indicates that whatever shifting among object categories occurred, if any, was largely unrelated to fiscal strain and that the changes in percentage allocation of each object category within Instruction were small. Likewise, the R^2 results yielded no cases in which FCR had significant explanatory power.

Analysis by Object Within Support Services. For the Support Services analysis (#7), the findings again indicate little relationship between the allocation of available monies among the different object of expenditure categories and district fiscal strain. In none of the equations were the R^2 values of any significant magnitude. Only the Salaries category (b_1 = .133) had a regression coefficient above the threshold of interest level for an individual budget category. Its positive value reflects a preference of districts for personnel over nonpersonnel expenditures as district fiscal strain increased. This was consistent with many districts' policies of reducing budgets in nonpersonnel areas first and trying to avoid personnel layoffs.

Analysis by Object Within Administration. The strongest set of findings was obtained from the analysis of the objects of expenditure within the Administration function (#8). Four of the six objects had large

Table 11

ANALYSIS OF FUNCTIONS BY OBJECTS OF EXPENDITURE

ANALYSIS #6 — INSTRUCTION
(Overall b_1 = .315)

OBJECTS OF EXPENDITURE	n	b_1	R^2 CHANGE FOR FCR
Salaries	46	.074	.041
Employee Benefits	46	-.022	.009
Purchased Services	46	-.005	.003
Supplies and Materials	46	-.033	.033
Capital Outlay	45	-.014	.006
Other Objects	41	-.002	.031

ANALYSIS #7 — SUPPORT SERVICES
(Overall b_1 = -.004)

OBJECTS OF EXPENDITURE	n	b_1	R^2 CHANGE FOR FCR
Salaries	46	.133	.033
Employee Benefits	46	.018	.004
Purchased Services	46	.004	.000
Supplies and Materials	46	-.006	.000
Capital Outlay	46	-.062	.004
Other Objects	43	.063	.015

Table 11 (Continued)

ANALYSIS #8 -- ADMINISTRATION
(Overall b_1 = -.299)

OBJECTS OF EXPENDITURE	n	b_1	R^2 CHANGE FOR FRC
Salaries	46	.417	.077
Employee Benefits	46	.122	.062
Purchased Services	46	.339	.270
Supplies and Materials	46	-.002	.000
Capital Outlay	46	-.855	.190
Other Objects	46	-.015	.000

regression coefficients. Salaries (b_1 = .417), Employee Benefits (b_1 = .122), and Purchased Services (b_1 = .339) all had positive values greater than .10. This indicates that as fiscal strain increased, more of the available administration dollars went toward Salaries and Purchased Services, and, to a lesser extent, Employee Benefits, while under the same increasing fiscal constraint conditions, less of the budget was spent on Capital Outlay (b_1 = -.855). The large negative coefficient is consistent with the previous overall object of expenditure results; since the bulk of Capital Outlay was recorded in the administration function area the overall effects were accentuated. Also, in Administration the preference for personnel over nonpersonnel expenditures was found as fiscal strain was greater. However, in spite of the relatively large values of the regression coefficients, only Purchased Services and Capital Outlay had R^2 change values which indicated much explanatory power for FCR.

Instructional Measures

In addition to the budget allocation pattern analyses, the study examined general indicators of the status of the instructional programs of the sample districts. The need to use commonly available and standardized district data limited the available measures, but two indicators were compiled for both the sample districts and for the State to provide a comparison.

Instructional Personnel. The first measure was the change in the number of instructional personnel employed--teachers, instructional aides, and total instructional personnel (teachers plus aides). These data were obtained from State Department of Education reports. The summary results are shown in Table 12. For the districts in the sample, the total number of teachers declined by 640 or 9.5 percent from 1978-79 to 1981-82. This

Table 12

CHANGES IN INSTRUCTIONAL PERSONNEL FROM 1978-79 to 1981-82

	Teachers	Instructional Aides	Total Instructional Personnel
Aggregate Change for Sample Districts	-640	+700	+60
Aggregate % Change for Sample Districts	-9.5%	+72.0%	+0.8%
Total State Change	-1643	+918	-725
Total State %	-6.1%	+23.1%	-2.3%

compared with an enrollment decline of 3.4 percent during this same period. However, it should be noted that over 60 percent of the reduction in teachers came from the two largest districts in the sample which represented only about 30 percent of the total number of teachers in the sample. The other 44 districts in the sample had only a 5.3 reduction in the number of teachers compared with a 2.6 reduction in their enrollment.

However, there was a significant growth in the number of instructional aides, which was greater than the loss of teachers. Aides grew by 700 in the sample districts, which resulted in an overall increase of total instructional personnel of 60 persons. This same pattern was present for the state during the same period. The number of teachers declined by 6 percent while the number of aides increased by 23 percent. There was still a net loss of instructional personnel for the state as a whole since the increased number of aides was lower than the number of teachers lost.

Student/Teacher Ratios. Another indication of the resource allocation decisions in instruction is the student/teacher ratios used by school districts. This measure takes into account both the number of students and the number of teachers for their instruction. Comparisons of these indicators are given in Table 13. For the sample districts taken as a whole, the student/teacher ratio increased from 18.6 to 19.9 in the study period. An average teacher had almost one-and-a-half more students per class in 1981-82 than in 1978-79. On the other hand, the student/total instructional personnel ratios declined from 16.3 to 15.6 reflecting the increased number of instructional aides. Thus, the overall ratio of students to instructional personnel in the sample districts was improved during this period. For the entire State, a similar occurrence was taking place. The student/teacher ratio increased from 16.6 in 1978-79 to 17.2 in 1981-82, again reflecting more students in an average classroom. With the increase of

Table 13

CHANGE IN STUDENT/PERSONNEL RATIOS
FROM 1978-79 TO 1981-82

	Student / Teacher	Student / Instructional Aides	Student / Total Instructional Personnel
Aggregate in Sample Districts:			
1978-79	18.6	119.2	16.3
1981-82	19.9	67.2	15.6
Difference	+ 1.3	- 52.0	- 0.7
State Totals			
1978-79	16.6	112.8	14.5
1981-82	17.2	89.2	14.4
Difference	+ 0.6	- 23.6	- 0.1

instructional aides the student/total instructional personnel ratio for the state remained essentially constant for the study period at about 14.5.

Conclusions

Validation of Study Hypothesis

The findings of the study indicate that the initial expectations of school district budget choices under fiscal constraint were validated. Districts did vary in their budget choices according to the degree of fiscal constraint they experienced. When fiscal constraint was greatest, the budget allocation patterns favored Instruction over other budget functions and Personnel expenditures were given priority over other object of expenditure items. As fiscal constraint diminished and more monies became available to school districts, the share of the budget allocated to the Administrative function and to Capital Outlay increased. Budget allocations for Support Services were not found to depend on district fiscal constraint.

Budget Allocation Patterns

At more detaile budget levels as well, relationships were found between districts' fiscal constraint and their budget allocation patterns. Within Instruction, Regular Programs were given priority over Special Programs as fiscal constraint increased. Insofar as this represents a decision to emphasize basic or core instructional areas, the finding was consistent with the expected direction of district budget decisions. However, the inferior position of the Special Programs was somewhat of a surprise given the federal and state mandates for special education programs and services for handicapped students. The answer to this unexpected finding appears to be twofold. First, there were only two budget categories in this analysis. Consequently, if the regression coefficient for Regular Programs

was positive, then the other regression coefficient (for Special Programs) had to be negative in order to balance. Second, it was necessary to combine all types of special programs into a single category in order to obtain consistent expenditure information from all sample districts. Unfortunately, this procedure obliterated the differences between the different types of special programs, and expenditure data for mandated and nonmandated programs were combined in a single amount for each district. Thus, the combination of expenditures for special education, adult education, and summer school was given a lower priority by districts when compared with the Regular Programs. Additionally, the necessary aggregation of all special programs may well have obscured relationships between each of these individual areas and district fiscal constraint. As noted previously, incomplete budget data did not permit a thorough analysis of subprograms within each of the major types of instructional programs or across the different subprograms.

Within the overall Administration function, both the General Administrative and the School Administrative areas showed a tendency to increase their percentage of the budget as districts' fiscal constraint increased, while the proportions of the Business Services subfunctions decreased. There are several possible explanations for this result. Both General Administration and School Administration are relatively indivisible activities when compared with Business Services; every district must have a school board, superintendent, and at least a minimal supporting staff and every school needs a principal and other administrative personnel (vice principal(s), clerical staff) depending on its size. The number of Business Services personnel can be expanded or reduced more easily depending upon funding which is available and the level of services required. Further, and drawing on the hypothesis of this study, School Administration, and to a lesser extent General Administration, are closer to instruction than central

office functions and would be expected to be favored during difficult economic times. However, the results also indicate that General Administration, which is farther from instruction than School Administration, fared better under conditions of fiscal constraint than did School Administration. Why this occurred is not clear from the data, although School Administration had a total budget of approximately twice that of General Administration. The greater budget amount may have provided more flexibility in rearranging operations more efficiently at the school level than at the superintendent and school board levels. Other explanations would be (1) that some school closures during the period reduced School Administration expenditures; and (2) that those making the final budget allocation decisions (i.e., superintendents and school boards) placed slightly higher priorities on General Administration activities.

The share of districts' budgets allocated for Salaries showed a definite tendency to increase as fiscal constraint increased while expenditures of Capital Outlay decreased as a percentage of the budgets under the same conditions. This result can be explained by the importance accorded to personnel as the primary resource for instruction and by the strength of the teacher unions in enhancing the economic status of their membership. While the data did not permit a more detailed analysis of the Salaries finding, it was surmised from the concurrent loss of teachers during this time that the increase in salary levels of the remaining teachers and the salary costs for the newly added instructional aides accounted for the priority given to this area. Capital Outlay included expenditures for such items as land, buildings, improvements, equipment, and vehicles. The purchase of these items often can be deferred to a later period if sufficient funds are not available in the current period. Those districts which experienced greater fiscal constraint are thought to have deferred Capital

Outlay expenditures during their difficult years, while those with available funds could and did spend them in this area. Another supporting interpretation of these results is that enrollment declines may have meant that school facilities were not in such demand and funds were freed for reallocation to other areas (i.e., personnel salaries).

Employee Benefits, which is a personnel-related expenditure, did not show a strong relationship overall or with Salaries. This indicates that as fiscal constraint increased, a tradeoff between Salaries and Employee Benefits was made in which Salaries were given priority and Employee Benefits deemphasized.

Lack of Fiscal Constraint Among Oregon School Districts

A second and certainly unexpected overall finding was that the school districts in the sample for the most part did not experience fiscal constraint. None of the districts in the sample had actual budget reductions from 1978-79 to 1981-82. When measured by either total expenditures or by expenditures per student, the districts generally fared well; the same was true for the statewide averages for these measures. Both the sample districts' and the state's average growth rates for total expenditures and for expenditures per student grew at an annual rate of approximately 4-1/2 percent above the Consumer Price Index of the State. This indicates that school districts achieved substantial real growth during a time of serious economic difficulties in the State. However, this finding does not mean that districts in the sample or in the state were without any fiscal pressures during this time. Many districts had been heavily reliant on federal timber revenues to support their total budgets. With the downturn in the housing industry and the consequent recession in the timber industry in the state, these revenues were curtailed, sometimes severely. Districts were forced to

increase local property taxes in order to make up for the lost timber revenues. Many districts experienced substantial voter resistance to the increased taxes and the proportion of tax levy elections that failed during this time rose sharply. Thus, districts had to balance very carefully their proposed expenditures with the available revenues in this period.

Personnel Changes

In reviewing the district personnel data it appears that districts were able to reduce the number of teachers faster than they experienced declines in enrollments. This result is contrary to some previously reported occurrences. These changes were also reflected in the student/teacher ratios of the districts. Student/teacher ratio decisions are important for cost control as well as for instructional effectiveness since the overall costs are sensitive to small changes in this measure. Out of the 46 sample districts, 31 had higher student/teacher ratios in 1981-82 than in 1978-79. The increases in the student/teacher ratios experienced by the sample districts and by the state as a whole served to reduce instructional costs. The sample districts also reported a large increase in the number of instructional aides during this period. The net result was a definite shift toward less expensive instructional personnel and an increase in the total number of instructional personnel. Thus the overall student/instructional personnel ratio was lowered.

Limitations

The findings of this study were derived from the budget data of the sample districts. These data, while reported by districts in a standardized format, were necessarily aggregated by function and object of expenditure within each district. So while it was possible to analyze statistically the

relationships between district fiscal constraint and budget allocation decisions, it was not possible to determine any specific actions taken by individual districts from the budget data available. For example, it could not be determined whether one program area was favored over another (e.g., mathematics given priority over foreign languages) or in which particular areas personnel reductions or additions may have been made (e.g., teachers, support staff, administrative personnel), or whether certain courses, support activities, or administrative functions were eliminated or added. These are interesting and important questions and require detailed case studies of individual district actions in budgetary, personnel, and programmatic areas.

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